
BULLETIN

of the

Chicago Herpetological Society



Volume 49, Number 12
December 2014



BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY

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Cover: Yacare caiman, *Caiman yacare*, basking in Brazil's Pantanal wetlands. Photograph by Stephen L. Barten, D.V.M.

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The *Bulletin of the Chicago Herpetological Society* (ISSN 0009-3564) is published monthly by the Chicago Herpetological Society, 2430 N. Cannon Drive, Chicago IL 60614. Periodicals postage paid at Chicago IL. **Postmaster:** Send address changes to: Chicago Herpetological Society, Membership Secretary, 2430 N. Cannon Drive, Chicago IL 60614.

The Snakebite Problem in Pakistan

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Introduction

No reliable snakebite data are available for Pakistan; however, Khan (1990) estimates fewer than 1000 deaths per year. For neighboring India Whitaker (1978) estimates 6000–9000 and Murthy (1990) raises the figures to 10000–15000! Obviously figures for Pakistan should be much less as compared to India, since she has much less area, smaller population, fewer natural jungles and fewer species of venomous snakes. The northern and northwestern highland is very thinly populated; moreover most of the southwestern Balochistan, southwestern Punjab and Sindh are desolate deserts, rarely visited. In these areas, except for occasional bites, snakes are not a great threat (Khan, 2000).

Snakebite cases are reported from most populated parts of the Indus Valley (Punjab) and the Indus Delta (Sindh), where about 95% of country's agricultural activity takes place. Khan's (1990) per year estimates are based on press reports: Punjab 150, Sindh 500, Khyber Pakhtunkhwa (North-West Frontier Province) and Balochistan less than 50.

Venomous snakes of Pakistan

We have considerable knowledge of snake species in Pakistan (Mertens, 1969, 1974; Minton, 1962, 1966; Khan, 1993, 2002, 2006, in prep.). The venomous (front-fanged) snakes are distinguished into land and sea snakes:

1. Land snakes: three families.

Elapidae: *Bungarus caeruleus*, *B. s. sindanus*, *B. s. razai*, *Naja naja*, *N. oxiana*.

Viperidae: *Daboia russelii*, *Echis carinatus astolae*, *E. c. multi-squamatus*, *E. c. sochureki*, *Eristicophis macmahoni*, *Pseudocerastes bicornis*, *P. persicus*, *Macrovipera lebetina obtusa*.

Crotalidae: *Gloydius himalayanus*.

2. Sea Snakes: one family.

Hydrophiidae: *Astrotia stokesii*, *Enhydrina schistosa*, *Hydrophis caeruleus*, *H. cyanocinctus*, *H. fasciatus*, *H. lapemoides*, *H. mamillaris*, *H. ornatus*, *H. spiralis*, *Lapemis curtus*, *Microcephalophis cantoris*, *M. gracilis*, *Pelamis platurus*, *Praescutata viperina*.

The rear-fanged snakes (family Colubridae) are mostly not of potential threat to human health; however, unattended cases of their bites are on record as resulting in grave consequences (Minton, 1990).

Ecobiology of snakebite in Pakistan

Pakistan is primarily an agricultural country. Eighty percent of the population resides in the Indus Valley, the main grain producing area. Nearly everybody in this region is engaged daily in some agri-related activity. They are always at risk of being

bitten, since where they work in the fields several virulent species of snakes are found: *Bungarus caeruleus*, *Naja naja*, *Daboia russelii* and *Echis carinatus*.

Snakebite records from Pakistan suggest:

- Along eastern Punjab, most snakebites are due to *Bungarus caeruleus*, *Naja naja* and *Daboia russelii*, rarely *Echis carinatus*.
- In the arid northwestern region, *Echis carinatus* and *Naja oxiana* prevail, while *Bungarus caeruleus* is rare.
- In the reclaimed inter-river tracts of Punjab *Echis carinatus*, *Naja naja* and *Bungarus caeruleus* are the main offenders, while *Daboia russelii* is rare.
- The picture changes in the tableland Potwar (sub-Himalayan strip) where the main offender is *Echis carinatus*, while *Bungarus caeruleus* and *Naja naja* are less common and *Daboia russelii* is rare.
- In the lower Indus valley *Bungarus caeruleus*, *Naja naja* and *Daboia russelii* are the main offenders, while *Echis carinatus* is confined to more arid areas.
- *Eristicophis macmahoni*, *Pseudocerastes persicus*, *Gloydius himalayanus* and *Macrovipera lebetina* are confined to the northwestern and northern Himalayan highlands. The highlands are thinly populated; bites are quite rare.
- Over a dozen species of sea snakes are known to occur in Pakistan's coastal waters (Khan, 2006). Because of their non-aggressive behavior bites by them are extremely rare, as has been documented in Malaysia (Chew et al., 2011).

Snakebite scenario on land

Year-round prevailing aridity necessitates constant irrigation activity in the agriculturally active Indus Valley. The irrigated areas stay humid and comparatively cool during summer, attracting frogs, rats and other potential prey items for snakes. Moreover, several resident species of birds thrive on insects and stored grain. Barns and houses are surrounded with untended growths of bushes and hedges, providing ideal refuge to several fossorial, secretive snakes, both venomous and nonvenomous. Rodents live in holes they excavate and in the cracked floors and mud walls of the houses, attracting snakes, which often become resident after consuming the occupant, so that the human inhabitants are under constant threat of fatal bites.

Identification of venomous snakes

Distinguishing venomous from nonvenomous snake needs some manipulation of body of the snake; while manipulating a recently killed "dead" snake may be dangerous as it may turn in reflex to bite. The characterization in the following keys is based on the most apparent features, and requires close inspec-

tion. Available antivenins are either family or species specific.

Key to families of snakes in Pakistan

- 1. Head scales large symmetrically arranged -----2
Head scales small irregularly arranged -----Viperidae
- 2. Nostrils dorsal; tail flat----- Hydrophiidae (sea snakes)
Nostrils dorsolateral; tail round ending at a point -----3
- 3. A pit between eye and nostrils -----Crotalidae
No pit between eye and nostrils ----- 4
- 4. Loreal scale absent -----Elapidae
Loreal scale present -----Colubridae

The following classification is prepared according to the altitudinal distribution of venomous snakes in Pakistan. Keys are for species specific to the region. The altitudinal distribution pattern of venomous snakes divides Pakistan into four biogeographical regions, each with its distinct fauna (Khan, 1990):

Region A: The Himalayas: 1600–6000 m

Geographical limits: Hunza, Gilgit, Swat, Dir, Chitral and Alpine Punjab.
Venomous snakes: *Gloydius himalayanus*, *Bungarus caeruleus*, *Macrovipera lebetina*, *Naja oxiana*.

- Key:
- 1. Head with large symmetrical scales -----2
Head with small irregular scales ----- *Macrovipera lebetina*
 - 2. Loreal scale present, a pit between eye and nostrils, body scales keeled ----- *Gloydius himalayanus*
No loreal scale, no pit, all body scales smooth ----- 3
 - 3. Small, thin, dark snake; scales of median dorsal row of body distinctly enlarged; body with a pattern of thin, light transverse bands ----- *Bungarus caeruleus*
Large, thick, light-colored snake; no dorsal row of enlarged scales; a hood in life; no dorsal banded pattern -- *Naja oxiana*

Region B: Northwestern highlands: 1000–3400 m

Geographical limits: Kalat, Quetta, Sibi, Loralai, Zhob, Waziri-

stan, Swat, Chitral, Kurrum Agency, Peshawar, Dera Ismail Khan.
Venomous snakes: *Macrovipera lebetina*, *Naja oxiana*, *Bungarus caeruleus*, *Echis carinatus*, *Pseudocerastes persicus*.
Key:

- 1. Head with large symmetrical scales; no loreal scale; body scales smooth -----2
Head with irregular small scales; loreal scales present; body scales keeled -----3
- 2. Small, thin, dark snake; scales of median dorsal row of body distinctly enlarged; body with a pattern of thin, light transverse bands ----- *Bungarus caeruleus*
Large, thick, light-colored snake; no dorsal row of enlarged scales; a hood in life; no dorsal banded pattern -- *Naja oxiana*
- 3. A group of small scales forming a “horn” over each eye ----- *Pseudocerastes persicus*
No hornlike structure over eye -----4
- 4. Subcaudals divided ----- *Macrovipera lebetina*
Subcaudals not divided ----- *Echis carinatus*

Region C: Balochistan desert basin: 160–1200 m

Geographical limits: Chagai, Kharan, lower Kallat, Khuzdar, Makran, Las Bela Divisions.
Venomous snakes: *Eristicophis macmahoni*, *Pseudocerastes persicus*, *Echis carinatus*, *Bungarus caeruleus*.

- Key:
- 1. No loreal scale; head with large, symmetrical scales; body scales smooth ----- *Bungarus caeruleus*
Loreal scales present; head with small irregular scales; body scales keeled -----2
 - 2. A single row of subcaudals ----- *Echis carinatus*
Double row of subcaudals -----3
 - 3. Snout with abnormally enlarged scales; no hornlike structure over eye ----- *Eristicophis macmahoni*
Snout with small scales; a “horn” over each eye ----- *Pseudocerastes persicus*



Figure 1. Localities for *Daboia russelii*, *Echis carinatus* and *Eristicophis macmahonii* in Pakistan.

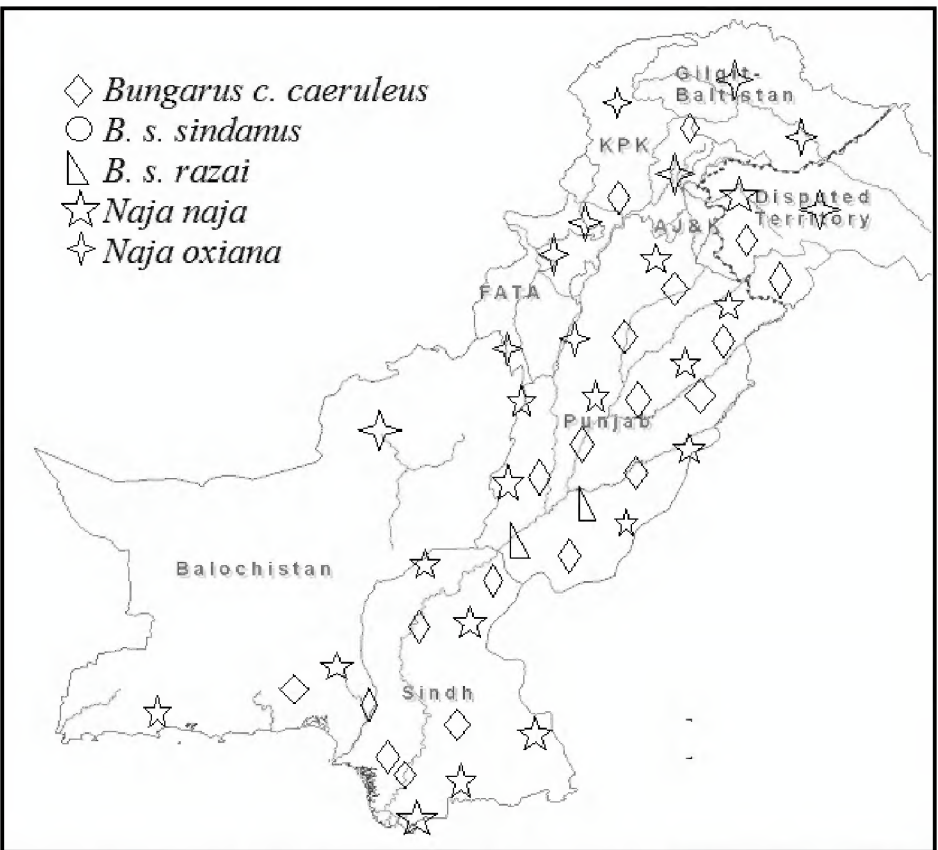


Figure 2. Localities for *Bungarus caeruleus*, *Bungarus sindanus*, *Naja naja* and *Naja oxiana* in Pakistan.



Figure 3. Localities for *Pseudocerastes bicornis*, *Pseudocerastes persicus*, *Macrovipera lebetina* and *Gloydius himalayanus* in Pakistan.

Region D: Upper and Lower Indus valley: Sea level to 500 m

Geographical limits: Potwar Plateau, Districts of Sargodha, Jhang, Dera Ghazi Khan, Faisalabad, Multan, Bhawalpur, Khairpur, Larkana, Rhimyar Khan, Hyderabad and Karachi Divisions.

Venomous snakes: *Bungarus caeruleus*, *Naja naja*, *Echis carinatus*, *Daboia russelii*

Key:

1. No loreal scale; head with large, symmetrical scales; body scales smooth -----2
Loreal scales present; head with small, irregular scales; body scales keeled -----3
2. Medium sized, thin, dark snake, with light crossbands; scales of median dorsal row distinctly enlarged -----
-----*Bungarus caeruleus*
Large, thick, dark snake; no dorsal row of enlarged scales; a hood in life; no dorsal banded pattern -----*Naja naja*
3. Large snake; head elongated; nostril enlarged crescent; a single row of subcaudals -----*Daboia russelii*
Small, stocky snake; head broad and square; nostrils small; subcaudals not divided -----*Echis carinatus*

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Notes on Reproduction in Broadhead Skinks, *Plestiodon laticeps* (Squamata: Scincidae) from Oklahoma

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Abstract

A histological examination of gonadal material from *Plestiodon laticeps* from Oklahoma was conducted. Spermiogenesis commences in April and ends in June. The smallest reproductively active male (spermiogenesis) measured 78 mm SVL and is a new minimum size record for maturity in *P. laticeps*. Mean litter size for two gravid *P. laticeps* females was 12.5 ± 3.5 SD, range = 10–15. The smallest reproductively active female (enlarged follicles > 5 mm) measured 89 mm SVL. It is possible that some of the large clutches reported for *P. laticeps* in the literature may have resulted from communal egg laying. My data confirm that at the western edge of its range (Oklahoma) the timing of events in the reproductive cycle of *P. laticeps* is similar to other populations of this species.

Plestiodon laticeps is known to occur from southeastern Pennsylvania to central Florida, west to eastern Kansas and east central Texas (Conant and Collins, 1998). In Oklahoma, it is restricted to the eastern portion of the state and occurs as far west as Tulsa, Pottawatomie and Love counties (Webb, 1970). It prefers moist, wooded areas where it may be found under leaf litter or loose bark of dead trees (Sievert and Sievert, 2011). The biology of *P. laticeps* is summarized in Cooper (1988). Taxonomy is in accordance with Brandley et al. (2012). Besides the detailed study on *P. laticeps* reproduction of Vitt and Cooper (1985), there are numerous anecdotal reports on reproduction of this species. The purpose of this paper is to provide, to my knowledge, the first information on reproduction of *P. laticeps* from Oklahoma as part of an ongoing series of studies on the reproductive biology of North American lizards. Comparisons are made between the timing of events in the reproductive cycle of *P. laticeps* and those of other North American scincids.

Methods

A sample of 55 *P. laticeps* consisting of 19 adult males (mean snout–vent length, SVL = $93.8 \text{ mm} \pm 10.3$ SD, range = 78–108 mm); 16 adult females, (mean SVL = $89.2 \text{ mm} \pm 5.4$ SD, range = 83–100 mm) and 20 subadults (mean SVL = $65.1 \text{ mm} \pm 8.1$ SD, range = 49–78 mm) was examined from the herpetology collection of the Sam Noble Oklahoma Museum of Natural History (OMNH), The University of Oklahoma, Norman, USA. *Plestiodon laticeps* were collected 1925–2008. Specimens are listed by Oklahoma county in the appendix.

A small incision was made in the lower part of the abdomen and the left gonad was removed for histological examination. Gonads were embedded in paraffin, sections were cut at 5 μm and stained with Harris hematoxylin followed by eosin counterstain (Presnell and Schreibman, 1997). Histology slides were deposited in OMNH. Enlarged ovarian follicles (> 5 mm length) or oviductal eggs were counted. An unpaired *t*-test was used to test for differences between adult male and female mean SVLs using Instat 3 (Graphpad, San Diego, CA).

Results

There was no significant difference between male and female mean SVLs (unpaired *t* test, *t* = 1.6, *df* = 33, *P* = 0.11). Monthly stages in the testicular cycle are in Table 1. Three stages were present: (1) regressed, seminiferous tubules are at their smallest sizes and contain spermatogonia and interspersed Sertoli cells; (2) recrudescence, a proliferation of germ cells occurs for the next period of spermiogenesis, and is evidenced by the presence of spermatogonia, primary and occasional secondary spermatocytes; (3) spermiogenesis, lumina of the seminiferous tubules are lined by sperm or clusters of metamorphosing spermatids. The smallest reproductively active male (spermiogenesis) measured 78 mm SVL (OMNH 43488) and was collected 17 May 2008. The period of spermiogenesis was brief and occurred in May. I could not determine when spermiogenesis commenced in *P. laticeps* in Oklahoma as no males from March or April were examined. Regressed testes were observed in June (Table 1). No *P. laticeps* males were examined from August or September when regressed testes were likely present. Recrudescence (renewal of the germinal epithelium) for the next period of spermiogenesis was observed in the only *P. laticeps* male examined from February.

Monthly stages in the ovarian cycle are in Table 2. Four stages were present: (1) quiescent, no yolk deposition in progress; (2) early yolk deposition, basophilic yolk granules in the ooplasm; (3) enlarged ovarian follicles (> 5 mm); (4) oviductal eggs. Mean clutch size for two gravid females was 12.5 ± 3.5 SD, range = 10–15. The smallest reproductively active female

Table 1. Monthly stages in the testis cycle of 19 adult *Plestiodon laticeps* from Oklahoma.

Month	N	Regressed	Recrudescent	Spermiogenesis
February	1	0	1	0
May	7	0	0	7
June	7	7	0	0
July	4	4	0	0

Table 2. Monthly stages in the ovarian cycle of 16 adult *Plestiodon laticeps* from Oklahoma.

Month	N	Quiescent	Early yolk deposition	Enlarged follicles > 5 mm	Oviductal eggs
March	1	1	0	0	0
April	1	1	0	0	0
May	3	1	1	1	0
June	5	4	0	0	1
July	6	6	0	0	0

(enlarged follicles > 5 mm) measured 89 mm SVL (OMNH 40513) and was collected 24 May 2003. Six slightly smaller females (SVL = 88 mm, OMNH 17041, 27806; SVL = 85 mm, OMNH 11283, 17047, 29268, 43496) were arbitrarily considered to be adults.

Discussion

Vitt and Cooper (1985) reported a minimum SVL of 85 mm for *P. laticeps* to attain maturity. One clutch of eggs was produced each year. My finding of one male *P. laticeps* (SVL = 78 mm) that exhibited spermiogenesis is a new minimum body size record for *P. laticeps* reproductive maturity.

It is apparent the timing of events in the *P. laticeps* reproductive cycle in Oklahoma is similar to that of other populations of this species and numerous other North American oviparous skinks that commence breeding shortly after emergence from hibernation. A list of some of these scincid species is in Goldberg (2012). This strategy of reproducing in spring is followed by approximately 91% of lizards from western North America (Goldberg, 2014). The timing of events in the above spring-breeding scincids differs markedly from those of *Plestiodon egregius*, which reproduces during autumn in Florida (Mount, 1963) and the Mexican viviparous skinks, *Plestiodon copei*, *P. lynxae* and *P. brevirostris*, which mate in summer, followed by ovulation in autumn, and parturition in spring (Ramirez-Bautista et al., 1996, 1998; Goldberg, 2002).

Larger clutch sizes for *P. laticeps* (Table 3) might be the result of communal egg-laying by more than one skink as suspected by Anderson (1965). Thus, it is possible that some of the large clutches reported for *P. laticeps* in Table 3 may have resulted from more than one female depositing eggs. Communal egg-laying has been well documented for Australian skinks, where sometimes more than one species deposits in the same place (Wilson, 2012). Subsequent study is warranted to determine how frequently communal egg-laying occurs in *P. laticeps*.

Acknowledgments

I thank Cameron D. Siler (OMNH) for permission to examine *P. laticeps* and Jessa L. Watters (OMNH) for facilitating the loan.

Table 3. Records of clutch sizes and reproductive period of *Plestiodon laticeps* at various locations; * = typically includes spring mating followed by summer egg deposition, ** = from captive females.

Location	Mean Clutch Size	Range	Reproductive Period*	Source
Alabama	Not given	6–16	Not given	Mount, 1975
Arkansas	Not given	9–25	May–July	Trauth et al., 2004
Florida	Not given	8–11	April–May	Ashton and Ashton, 1991
Florida	Not given	5–15	Not given	Bartlett and Bartlett, 2011
Georgia	Not given	6–19	April–July	Jensen et al., 2008
Illinois	Not given	5–20	May–July	Phillips et al., 1999
Indiana	Not given	13	Not given	Minton, 2001
Kentucky	Not given	6–10	June–July	Barbour, 1971
Missouri	Not given	6–10	Not given	Anderson, 1965
Missouri	Not given	22	April–July	Johnson, 2000
North Carolina	14.8	8–22	April–July	Palmer and Braswell, 1995
Ohio	Not given	6, 7**	Not given	Conant, 1938
Oklahoma	Not given	10, 15	May–June	This paper
Tennessee	Not given	6–19	April–June	Niemiller et al., 2013
Texas	Not given	Up to 16	April–May	Garrett and Barker, 1987
Virginia	11.8 ± 1.9	9–13	Spring–Summer	Mitchell, 1994
No specific locality	Not given	6–10	April–July	Smith, 1946
No specific locality	Not given	6–16	May–July	Behler and King, 1979
Alabama, Georgia, South Carolina	13.7 ± 0.52	9–18	April–June	Vitt and Cooper, 1985

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Appendix

Plestiodon laticeps from Oklahoma (OMNH) examined by county: **Atoka**: 43054-43056, 43058; **Cherokee**: 40111, 43488-43497; **Choctaw**: 1867; **Latimer**: 11283, 11631, 11689; **Le Flore**: 15759, 15816, 15904, 15955, 16194, 16719, 41668; **McCurtain**: 1649, 1671, 17039, 17041, 17043-17045, 17047, 17218, 17219, 17252, 25614, 26080, 27041, 27806, 29268; **Muskogee**: 40511, 40513, 40514, 40516-40518, 40520-40523, 40526; **Pushmataha**: 27768; **Sequoyah**: 27665.

Bull. Chicago Herp. Soc. 49(12):171-173, 2014

What You Missed at the October Meeting

John Archer
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Here's the problem: I'm not particularly imaginative or talented so I don't know what to write about Dr. Stephen Barten that I haven't already written, so I'm going to tell you what he's not. He's not a professional photographer, a professional speaker, or a professional biologist.

I suspect he could be any or all of the above, but to the best of my knowledge Steve doesn't get paid for any of those talents. He is a longtime member of your society, a past president of the CHS, and a veterinarian. He occasionally gets the chance to travel to places with other vets that most of us will never see. Past trips have included watching polar bears in the Arctic and penguins in the Antarctic. He takes lots of photographs when he travels and he is very good at capturing images. He then returns and sometimes can be talked into sharing his adventures with the Chicago Herpetological Society. His recently traveled to the Pantanal of Brazil. He took about 5,000 photos. He kindly agreed to share 200 or so with us.

Steve doesn't just load all his photographs into PowerPoint and click through them telling us names. He's way too accomplished a speaker to settle for that. He researches his trips, the regions they encompass, the inhabitants, the wildlife, and often the history. He uses his great sense of humor and his superb sense of pacing to keep us engaged as he recreates his experiences so that we might share some of his adventures. He and Dr. Gery Herrmann, another long time member of the CHS, often travel together and their stated goal this trip was to see a yellow anaconda (*Eunectes notaeus*). He titled his talk "The Wildlife of the Pantanal, Brazil."

Steve opened with a map of the Pantanal, the world's largest wetland ecosystem covering 75,000 square miles, bigger than the state of Georgia. A tree on the banks of a river showed us a high water mark easily ten feet above the surface of the water. During the wet season 80% of the land area is submerged. The



Steve Barten. Photograph by Dick Buchholz.

Pantanal has been declared a world heritage site and the biodiversity of the area is immense. Over 100 species of mammal, 650 species of birds, 80 species of reptiles, and 400 species of fish make the Pantanal their home. It covers a portion of western Brazil and eastern Bolivia and Paraguay. Steve and Gery explored a small portion of that vast landscape in late September—towards the end of the dry season. They visited four lodges, some of which are also operating cattle ranches.

The road to the lodges was the Trans-Pantanal Highway. Photos of rickety bridges on a dirt road belied the grandeur of the name. Steve said that the road is impassable in the wet season. One of the first reptiles spotted from the bus was a well-fed Yacare caiman (*Caiman yacare*), certainly not the last their group or we would see. With shots from Google Earth Steve even showed aerial photos of the lodges. Cows and rheas filled the screen, along with nice shots of a Chaco frog (*Leptodactylus chaquensis*) and a Chaco treefrog (*Hypsiboas raniceps*). Capy-



The TransPantanal Highway is not quite as grand as its name. Photograph by Stephen L Barten, D.V.M.



Timing is sometimes critical in photography. Yacare caiman (*Caiman yacare*).



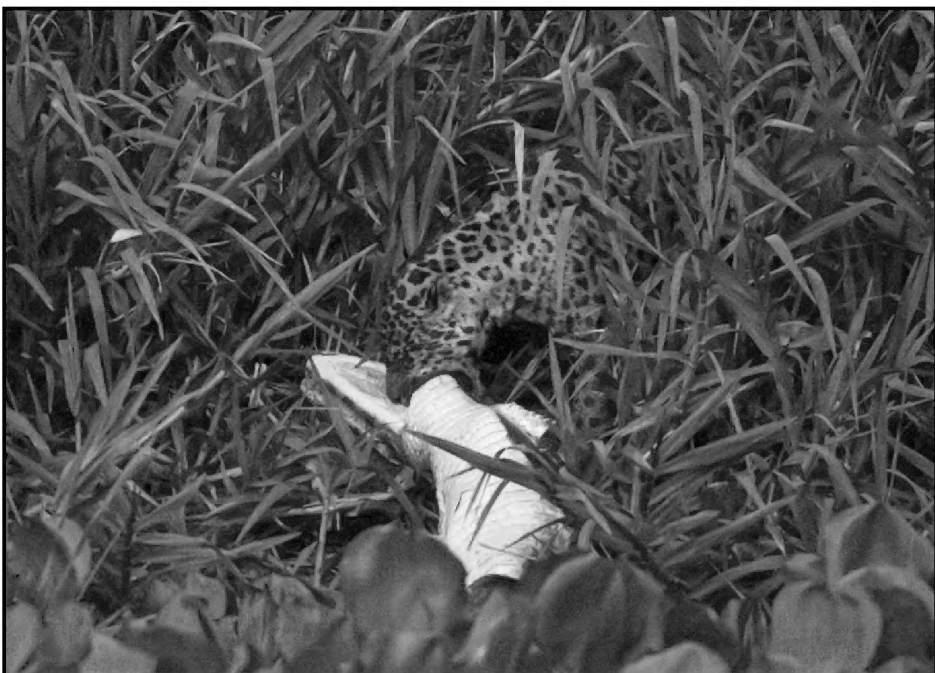
The Pantanal has one of the highest concentrations of jaguars, the third largest feline.



A spotted humming frog (*Chiasmocleis albopunctata*).



A southern caracara performing pest removal on an appreciative capybara.



A series of Steve's excellent photographs allowed us to see what the distance and darkness denied to those who were at the scene.



Mato Grosso Oval Frog (*Elachistocleis matogrosso*).

(All photographs by Stephen L. Barten, D.V.M.)



Cocoli Heron. Just one of many spectacular bird shots included in Steve's talk. Photograph by Stephen L. Barten, D.V.M.

baras and more caimans showed. Then we saw shots of a target species for Steve and Gery, hyacinth macaws. Steve filled us in on a few facts about these vividly colored birds. This biggest of the macaws is endangered with the wild population estimated at 6,500. They nest in 100-year-old Manduvi trees. The trees' seeds are distributed by toucans, but toucans also consume the hyacinths' eggs, destroying 53%. Web of life, indeed. We saw gorgeous shots of hyacinth macaws grooming and flying. A white woodpecker and gray-necked wood rail lived up to their names. Then more herps, with a spotted humming frog (*Chiasmocleis albopunctata*), purple with white spots, and the first snake (*Erythrolamprus poecilogyrus*), a pretty little snake showing red skin between its scales and a blue and pink red surface. Steve says they fill the niche of our garters.

Mammals were usually viewed from a distance, but Steve's photography brought them close to our eyes. Coatimundis scurried through the brush and tapirs waded in ponds. We learned a little about tapirs, including that they reach 710 lbs. and have spotted young. A highlight that brought chuckles from the audience was the photos of a southern caracara (a hawklike bird) searching for vermin on the back of a reclining capybara. In the last shot Steve captured the pure pleasure of the capybara rolling over as the caracara continued the grooming. Returning to camp after being on the road, they discovered a giant anteater strolling the lodge grounds. The taciturn beast didn't seem to be disturbed by the attention given. Steve pointed out that giant anteaters have been known to kill jaguars and men on occasion. We saw close-ups of the rugged claws responsible for those acts.

Traveling to the next lodge revealed more wildlife, and we saw bright pictures of red-and-green macaws and a great potoo, which I mention only because I really like that name. The next lodge sat by a river and much of their time was spent "river cruising". As they moved up and down the river Steve shot photos of yellow-rumped caciques, southern lapwings, and buff-necked ibis. But the main show soon appeared as we stared at a photo of the third largest feline in the world, a jaguar. They can kill with a throat bite and suffocation or a skull bite that pierces the brain. Their jaws are powerful enough to crush tortoise shells, and any vertebrate can be included in their diet. Steve had multiple shots of these magnificent hunters interspersed with capybaras, beautiful birds, and a rococo toad (*Rhinella schneideri*), complete with a huge tick hanging from its chin. When asked if they'd removed it, Steve answered that as full as the tick was, it would drop off very soon of its own accord.

While in the boat the group spied a snake swimming and when close enough, Steve reached and picked it up. He said he didn't know what it was, but he knew what it wasn't. It proved to be a central sipo snake (*Chrionius quadricarinatus*), totally harmless obviously, but the guide commented that in all his years on the river, Steve was the first to bring a snake into the boat. Steve thought it was a natural act. Pictures of a "curvaceous" chaco chachalaca bird, river otters, and jaguar tracks flashed before our eyes. Then Steve described "the price of admission tonight." It was after sunset on the last day at this lodge when they spotted a female jaguar sliding through the grass along the bank. As the light faded, she leaped into the river, disappeared, and suddenly reemerged appearing in the dark as only a white triangle to the spectators. Steve's tremendous photography in very dark conditions allowed us to see what those in the boat could not. The jaguar had bitten a six-foot caiman through the skull and dragged it from the water. The series of photos and Steve's narration let us share in the excitement of that capture.

Steve introduced us to the next lodge with a photo of a sign posted in the toilet. A short list of rules included "Don't urinate on the floor" and "Do not climb on the toilet." One wonders as to the quality of their normal guests. Steve showed pictures of yellow-collared macaws and a jabiru stork, capybaras and a nicely timed shot of a caiman tossing a fish into its mouth. Marsh deer were featured, along with a capybara peering lazily through the plants. The last lodge had red-legged seriemas looking like African secretary birds and filling a similar niche. Steve asked Gery to tell of one of the group coming to him on the last night declaring she'd been bitten by a poisonous snake she'd just stepped on. Gery went to the rescue, discovering the small water snake that she had stepped on. It bit Gery a couple of times when he picked it up, thus allaying the woman's fear. The snake, the last of their trip, was later identified as *Hydrops caesurus*.

Steve and Gery took an extended version of the trip and visited Iguazu Falls on the borders of Brazil, Argentina, and Paraguay. We saw lots of photos of these famous falls, both with low water and higher water. Pictures naturally also showed the local wildlife. Agoutis, capuchins, and coatis graced the screen, the latter accompanied by a graphic sign showing a bloody hand and warning against feeding the "quatis" because of "attacks' risk." A colorful red-breasted toucan and black-and-white tegus were just some of the animals that they found, along with gorgeous butterflies and a spiny lizard (*Tropidurus etheridgei*). The hotel was luxurious and Steve stressed the difference between that and their previous accommodations.

Steve gave us a little philosophy about vacations (maybe life?). Their target animal in the Pantanal was the yellow anaconda. While the bus traveling in front of them saw the tail of one as it left the road (and Steve had something to say about people who let it get away), the bus they were riding in was too far behind to see it. They missed the target species, but Steve said the jaguar capture certainly made up for it. Trips are sometimes like life; while your preconceived notions may not be met, there is usually something good that fills the space.

I said at the beginning that Steve is not a professional photographer, biologist, or speaker, but he could be. Thanks Steve.

Unofficial Minutes of the CHS Board Meeting, November 14, 2014

President John Archer called the meeting to order at 7:35 P.M. Board members Dick Buchholz, Jason Hood and Aaron LaForge were absent.

Officers' Reports

Recording Secretary: Minutes of the October 24 board meeting were read and approved..

Treasurer: Andy Malawy went over the financial report for the month of October.

Membership Secretary: Mike Dloogatch distributed a graph showing the membership numbers over the last 14 years, and read aloud the list of newly lapsed members.

Sergeant-at-arms: Attendance at the October general meeting was 43.

Committee Reports

Shows:

- Notebaert Nature Museum, first full weekend of each month.
- Aquatic Experience Chicago. Molly Carlson canceled our participation this year. She plans to start organizing for this event earlier next year.
- Fishing / Sportsman's Show, Schaumburg Convention Center, January 29–February 1.
- Walker Stalker convention, February 21–22, Navy Pier.

Junior herpers: There were 54 in attendance at the November meeting..

Old business

Erica Mede has received no responses yet to the letters she sent out requesting donations to the raffle.

Records: Steve Sullivan says that the Notebaert has room to store some records. We will still need to rent storage space and also come up with a new place to store the trailer. Teresa volunteered to check spaces and prices.

Bylaws discussion: Suggestions: Combine secretaries and expand committees. Committee chairs should get a board vote. Secretary positions be renamed to directors. Corresponding and

publications secretaries be combined to Media Relations Director. List all of the duties of the board members, but not in the bylaws. John asked for additional specific recommendations for bylaws.

New Business

Ballots: Mike Dloogatch will provide them at the November meeting.

Rewarding show volunteers: Erica Mede moved that an annual appreciation luncheon for show volunteers (excluding Reptile-Fest) be approved at \$20 per capita. Motion carried unanimously. Erica also moved that in 2015 people who volunteer for their first show should be given a CHS patch. Motion carried unanimously.

Advisor to crittercamp.com sanctuary: Bob Bavirsha wants to know if he should do this officially for CHS or on his own. Also would like another person involved.

Round Table

Mike Dloogatch asked for more material for the *Bulletin*. He received a nice email expressing appreciation for last month's article about brownsnake feces. Mike also mentioned that Robert Jadin was recently a co-author of an article on the phylogeny of African vipers.

The Malawys went to Arizona; the next day it snowed in Chicago.

Mike Polinski got his second hognose snake this past weekend with a valid permit.

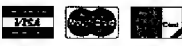
Erica gave an lecture on emergency medicine in reptiles. She told a room full of vets that they didn't understand reptile emergency medicine. She was then asked to return and present again.

Meeting adjourned at 9:17 P.M.

Respectfully submitted by David Hoff



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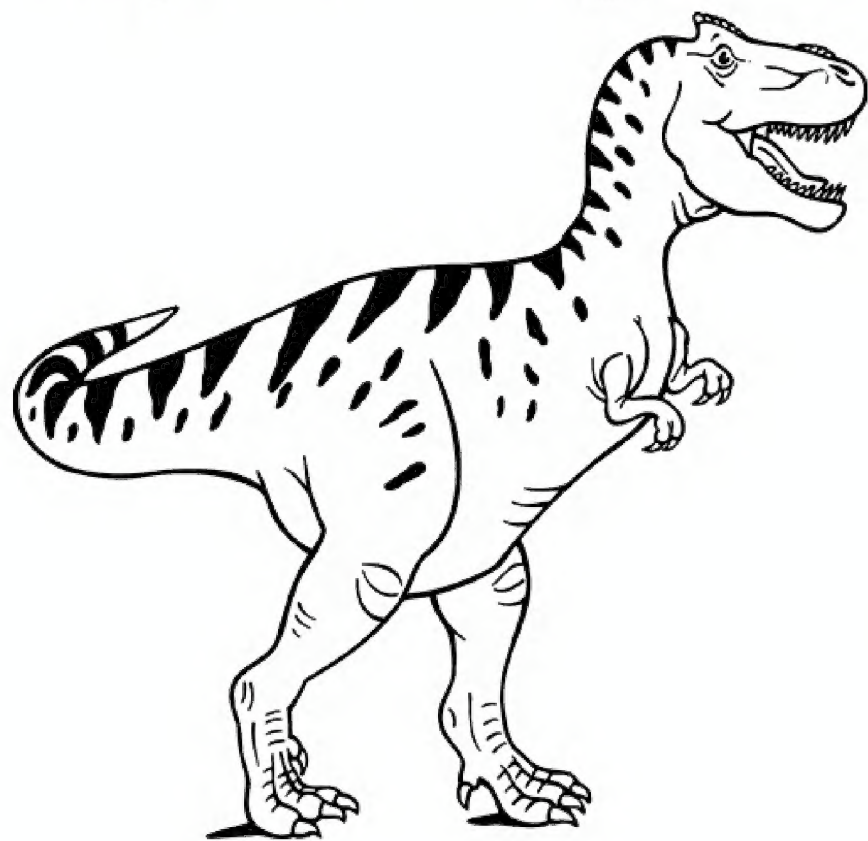
For sale: Standard 24" Neodesha reptile cages, 3 × 6" vent on top, tempered glass front. Like new condition, no burns or stains, original glass. These cages do not have the dam (horizontal molding that crosses the entire front width of the cage, used to hold back bedding material)—easier to clean without the dam. About 20 currently available, \$45 each. Linda Malawy, (630) 717-9955, linda_malawy@hotmail.com

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UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Tuesday, December 30, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **This meeting will be a holiday party.** The CHS will provide soft drinks and snacks. If you would like to bring something edible to share with the group, you are invited to do so. If you would like to bring an animal to show off to the group, you are encouraged to do that as well. This will be a chance to socialize all evening and get to know your fellow members a little better.

A speaker has not yet been confirmed for the January 28, 2015, meeting. Details will be posted on www.chicagoherp.org when they become available.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago's newest museum—the **Peggy Notebaert Nature Museum**. This beautiful building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the next board meeting, to be held at 7:30 P.M., Friday, January 16, 2015, at the Schaumburg Township District Library, 130 S. Roselle Road, Schaumburg.

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info visit the group's Facebook page.

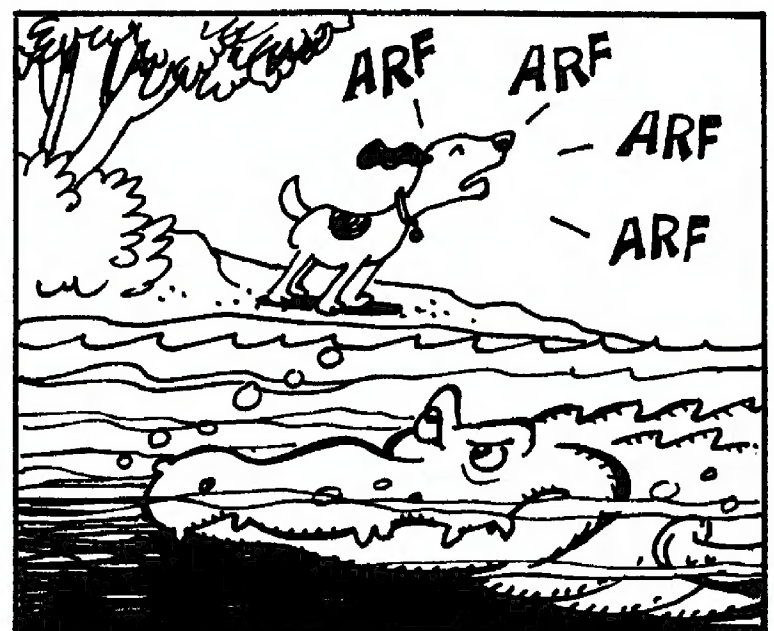
ELECTION RESULTS

As a result of the elections held November 26, 2014, the following officers and members-at-large will serve on the CHS Board of Directors for the year 2015.

President: John Archer
Vice-president: Rich Lamszus
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